

A procedure was established for analysis of TMS derivatives of abienol. One sample was analyzed for Project 2525.

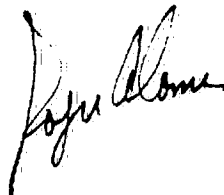
Mainstream smoke fractions from VdC smoking run #2 were analyzed using both NPD and FID. In addition, mainstream and sidestream fractions from 2R1 and Monitor-22 smoke runs were evaluated.

$^{14}\text{C}$ -Nicotine Cigarettes

The first batch of cigarettes containing  $^{14}\text{C}$ -nicotine (Code 2-83-1) machine made by Project 2506 for use in the VdC project were sectioned for uniformity of labelling and smoked for total distribution. The section data showed excellent distribution of radioactivity throughout the rod with an average specific activity of  $11.0\mu\text{Ci/g}$  tobacco. The total smoke distribution data are listed along with data from hand-made  $^{14}\text{C}$ -nicotine cigarettes (Code 11-3-82) smoked earlier. Both cigarette types contain 65mm of the "VdC blend" in Schweitzer 156 paper and have #2051 whistle thru filters attached.

$^{14}\text{C}$ -Nicotine Cigarettes  
TOTAL SMOKE DISTRIBUTION (%)  
(Five Run Averages)

	<u>Code #2-83-1</u>	<u>Code #11-3-82</u>
SS: Gas	15.4	15.7
MS: Gas	11.1	1.2
SSTPM	46.3	37.9
MSTPM	18.3	16.6
Butt (filler)	10.4	22.6
Butt (filter)	8.2	6.0
Ash	0.3	0.2



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CHARGE NUMBER: 2501  
PROJECT TITLE: Nuclear and Radiochemistry of Smoke  
PROJECT LEADER: Roger A. Comes  
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#### Low Level Laboratory

Samples of "class tobaccos" that had been counted on the low background alpha-beta counting system were re-counted during this report period. Beta activity only is listed. Class tobacco types are described in Project 2501 Annual Report-1982, Acc. #83-029. The consistency in the data between the two dates (9 months apart) enhances the faith one can put in the instrumentation. Drift over this time period has been minimal with the Tennelec system.

<u>Class Tobacco</u>	<u>1/83 (pCi/g)</u>	<u>4/82 (pCi/g)</u>	<u><math>\Delta</math>(pCi/g)</u>
1	25.9	24.7	+1.2
2	28.8	28.4	+0.4
3	24.5	29.2	-4.7
4	40.7	40.2	+0.5
5	46.9	43.5	+3.4
6	27.4	27.7	-0.3
7	50.0	49.3	+0.7
8	25.7	27.5	-1.8
Control	26.1	25.0	+1.1

These class tobacco materials are being utilized additionally to study other counting effects, i.e. dust vs granular samples and thin film vs thick layered samples.

#### Health Physics

Surveys were conducted in laboratories assigned to Projects 2501, 2525, 2506, 6910 and 6902. Wipe tests were carried out on sealed sources in the Semi-works. Health physics aspects relating to the use of  $^{32}\text{P}$  by the Biochemistry Division continue.

#### Capillary Chromatography

An alkaloid containing fraction of smoke was analyzed for the presence of nicotine at the request of Project 2525. The sample was found to contain 20ng/ $\mu\text{l}$  nicotine with a quantitative variation of less than 10% and a retention time variation of 0.3%.

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